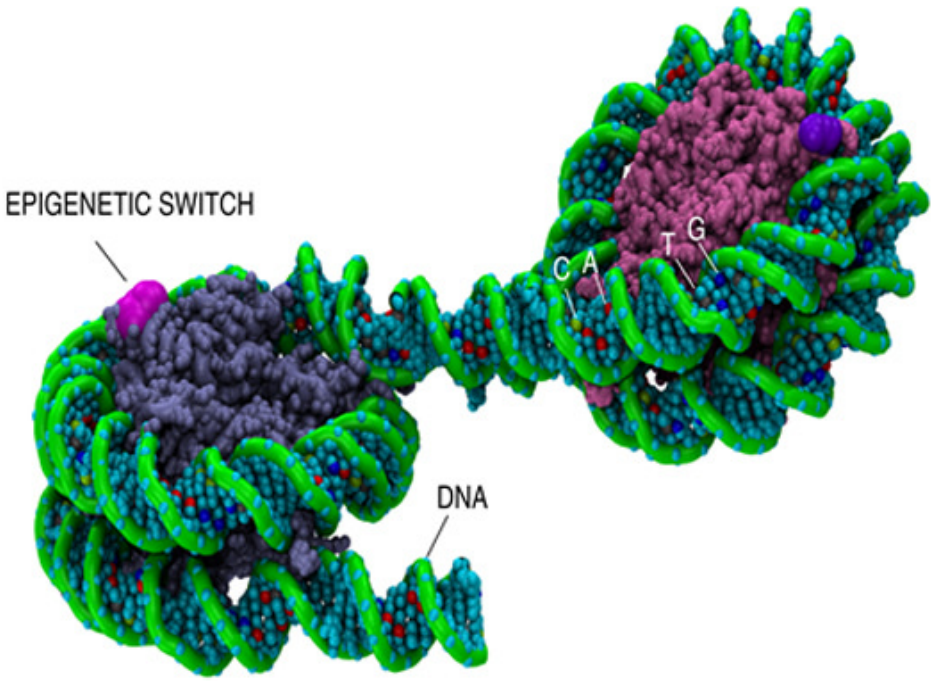
Lab’s Frontiers in Science lectures focus on epigenetics

August 7, 2013



Is behavior hardwired by DNA or a product of environment?

LOS ALAMOS, N.M., August 7, 2013—Los Alamos National Laboratory scientist Karissa Sanbonmatsu, will discuss epigenetics in a series of Frontiers in Science lectures beginning Tuesday, Aug. 13, at the New Mexico Museum of Natural History and Science in Albuquerque.

The 7 p.m. talk, titled “Nature, Nurture or Neither: The New Science of Epigenetics,” focuses on the age-old question of “nature versus nurture,” and also looks at how social interactions and environmental factors play a role in programming your DNA.

“Over the past decade, epigenetics research has and continues to unveil a whole new kind of biological circuitry,” Sanbonmatsu said. “The act of a mother nurturing or not

nurturing her baby programs DNA; so literally, nurture directly affects nature in a way that nature and nurture are fused together."

The new science of epigenetics studies how DNA is reprogrammed at the molecular level. DNA is often considered the blueprint of life, however, environmental factors and social interactions during formative years can affect genes for more than three generations. This heritable switching is called "epigenetics" and has been associated with diet, exercise, mate preference, depression, autism, eating disorders and response to abuse.

Sanbonmatsu, of Los Alamos' Theoretical Biology and Biophysics Group, will discuss the new science of epigenetics and how it is related to a wide range of biological phenomena. Her research involves how DNA can be reprogrammed throughout life and how the missing link could be RNA molecules.

"We have been lucky enough to land on the cutting edge of this field, in the area of long non-coding RNAs, which has absolutely exploded in the last three years," Sanbonmatsu said. "With many suggesting that the number of long non-coding RNAs may rival the number of proteins, the landscape of molecular biology may look entirely different ten years from now."

These Frontiers in Science lectures all begin at 7 p.m., at the following locations:

- Tuesday, Aug. 13, New Mexico Museum of Natural History and Science, 1801 Mountain Road NW, Albuquerque
- Thursday, Aug. 15, Nick L. Salazar Center for the Arts, Northern New Mexico College, 921 Paseo de Oñate, Española
- Tuesday, Aug. 20, Duane W. Smith Auditorium, Los Alamos High School, Los Alamos
- Thursday, Aug. 22, James A. Little Theater, New Mexico School for the Deaf, 1060 Cerrillos Road, Santa Fe.

Sponsored by the Fellows of Los Alamos National Laboratory, the Frontiers in Science lecture series is intended to increase local public awareness of the diversity of science and engineering research at the Laboratory.

All talks in the Frontiers in Science lecture series are free of charge. For more information, call (505) 665-9196 or email Linda Anderman at anderman@lanl.gov.

About the Speaker

Sanbonmatsu has been a principal investigator at Los Alamos National Laboratory since 2001. She received her bachelor's degree in physics from Columbia College at Columbia University and her doctoral degree in astrophysical, planetary and atmospheric sciences from the University of Colorado at Boulder. In 2012, she was elected fellow of the American Physical Society for pioneering the computer simulation of molecular machines and biomolecular complexes.